



## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2023-0015; Project Identifier AD-2022-01281-T; Amendment 39-22496; AD 2023-13-11]**

**RIN 2120-AA64**

### **Airworthiness Directives; AVOX Systems Inc. (formerly Scott Aviation) Oxygen Cylinder and Valve Assemblies; and Oxygen Valve Assemblies**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

**SUMMARY:** The FAA is superseding Airworthiness Directive (AD) 2022-04-09, which applied to certain AVOX Systems Inc. (formerly Scott Aviation) oxygen cylinder and valve assemblies; and oxygen valve assemblies; installed on but not limited to various transport airplanes. AD 2022-04-09 required an inspection of the oxygen valve assemblies, and oxygen cylinder and valve assemblies, to determine the serial number; for certain assemblies and parts, a detailed inspection of the gap between the bottom of the packing retainer and top of the valve body on the assemblies; and replacement of assemblies having unacceptable gaps. This AD was prompted by a determination that additional assemblies and parts are affected by the unsafe condition. This AD requires an inspection of the oxygen valve assemblies, and oxygen cylinder and valve assemblies, to determine the serial number of the valve, cylinder, and entire assembly; for certain assemblies and parts, a detailed inspection for correct spacing of the gap between the bottom of the packing retainer and top of the valve body on the assemblies and replacement of assemblies having unacceptable gaps. This AD also limits the installation of affected parts under certain conditions and reporting inspection results and returning

certain assemblies to the manufacturer. The FAA is issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:**

*AD Docket:* You may examine the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2023-0015; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, any comments received, and other information. The address for Docket Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

*Material Incorporated by Reference:*

- For service information identified in this final rule, contact AVOX Systems Inc., 225 Erie Street, Lancaster, NY 14086; telephone 716-683-5100; website [safranaerosystems.com](https://www.safranaerosystems.com).

- You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195. It is also available at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2023-0015.

**FOR FURTHER INFORMATION CONTACT:** Elizabeth Dowling, Aviation Safety Engineer, FAA, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7300; email [9-avs-nyaco-cos@faa.gov](mailto:9-avs-nyaco-cos@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Background**

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2022-04-09, Amendment 39-21951 (87 FR 10958, February 28, 2022) (AD 2022-04-09). AD 2022-04-09 applied to certain AVOX Systems Inc. (formerly Scott Aviation) oxygen cylinder and valve assemblies, and oxygen valve assemblies, installed on but not limited to various transport airplanes. AD 2022-04-09 was prompted by reports of cylinder and valve assemblies having oxygen leakage from the valve assembly vent hole, caused by the absence of a guide that maintains appropriate spacing between certain parts. The NPRM published in the *Federal Register* on January 27, 2023 (88 FR 5278). The NPRM was prompted by a determination that additional assemblies and parts are affected by the unsafe condition. In the NPRM, the FAA proposed to continue to require an inspection of the oxygen valve assemblies, and oxygen cylinder and valve assemblies, to determine the serial number of the valve, cylinder, and entire assembly. For assemblies and parts with certain serial numbers, the FAA also proposed to continue to require a detailed inspection for correct spacing of the gap between the bottom of the packing retainer and top of the valve body on the assemblies, and replacement of assemblies having unacceptable gaps. The NPRM also proposed to limit the installation of affected parts under certain conditions and reporting inspection results and returning certain assemblies to the manufacturer. The FAA is issuing this AD to address oxygen leakage from the cylinder and valve assemblies, which could result in decreased or insufficient oxygen supply during a depressurization event; and heating or flow friction, which could cause an ignition event in the valve assembly.

## **Discussion of Final Airworthiness Directive**

### **Comments**

The FAA received comments from four commenters, including Atlas Air, Aviation Partners Boeing, FlyPersia Airlines, and SIA Engineering. The following presents the comments received on the NPRM and the FAA's response to each comment.

### **Effect of Winglets on Accomplishment of the Proposed Actions**

Aviation Partners Boeing stated that the installation of winglets per Supplemental Type Certificate (STC) ST00830SE, STC ST01219SE, STC ST01518SE, and STC ST01920SE does not affect the accomplishment of the manufacturer's service instructions.

The FAA agrees with the commenter that STC ST00830SE, STC ST01219SE, STC ST01518SE, and STC ST01920SE do not affect the accomplishment of the manufacturer's service instructions. Therefore, the installation of STC ST00830SE, STC ST01219SE, STC ST01518SE, and STC ST01920SE do not affect the ability to accomplish the actions required by this AD. The FAA has not changed this AD in this regard.

### **Request to Change the Applicability for Certain Airplanes**

FlyPersia Airlines requested that paragraph (c)(12) of the proposed AD be changed to "The Boeing Company Airplanes." The commenter asserted that some of the affected oxygen cylinder and valve assemblies may be installed on other Boeing airplanes.

The FAA does not agree with the change requested. The applicability of this AD includes the airplane models that are known to be affected. However, as stated in paragraph (c) of this AD, the affected oxygen cylinder and valve assemblies might be installed on, but are not limited to, the aircraft identified in paragraphs (c)(1) through (12)

of this AD, certificated in any category. This AD has not been changed in regard to this request.

### **Request for Clarification on Compliance of a Specific Airplane**

SIA Engineering requested clarification on whether Boeing Model 737-8 airplane, Manufacturer Serial Number (MSN) 44257, is in compliance with the proposed AD. The commenter declared that the airplane was delivered in May of 2022 and was in compliance with AD 2022-04-09. The commenter also pointed out that the proposed AD provided credit for the service information that was required by AD 2022-04-09 and asked if credit may be taken for airplanes that have complied with AD 2022-04-09 and reported the results as required by that AD.

The FAA agrees to clarify. An airplane without a part identified in paragraph (c) of this AD is not affected by this AD. However, an airplane delivered without an affected part, but on which the part was later replaced with an affected part (one identified in paragraph (c) of this AD) is affected by this AD and must comply with this AD; this includes complying with the revised parts installation prohibition specified in paragraph (k) of this AD.

### **Request to Correct Typographical Error**

Atlas Air and SIA Engineering noted a typographical error in the regulatory text of the proposed AD. The commenters pointed out that the paragraph designation of the Parts Installation Limitation paragraph should have been designated as paragraph (k) of the proposed AD.

The FAA agrees and has redesignated that paragraph, and subsequent paragraphs, accordingly.

### **Conclusion**

The FAA reviewed the relevant data, considered any comments received, and determined that air safety requires adopting this AD as proposed. Accordingly, the FAA

is issuing this AD to address the unsafe condition on these products. Except for minor editorial changes, and any other changes described previously, this AD is adopted as proposed in the NPRM. None of the changes will increase the economic burden on any operator.

#### **Related Service Information under 1 CFR Part 51**

The FAA reviewed the following service information, which describes procedures for an inspection to determine the serial numbers of the oxygen cylinder and valve assemblies, and the oxygen valve assemblies, a detailed inspection for correct spacing of the gap between the bottom of the packing retainer and top of the valve body on the assemblies, parts marking, inspection report, and return of parts to the manufacturer. These documents are distinct since they apply to different assembly part numbers.

- AVOX Systems Inc. Alert Service Bulletin 10015804-35-01, Revision 03, dated June 7, 2021.
- AVOX Systems Inc. Alert Service Bulletin 10015804-35-02, Revision 03, dated March 11, 2022.
- AVOX Systems Inc. Alert Service Bulletin 10015804-35-03, Revision 03, dated June 18, 2021.

This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

#### **Costs of Compliance**

The FAA estimates that this AD affects 3,034 oxygen cylinder and valve assemblies, and oxygen valve assemblies, installed on various transport category airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

### Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Serial number inspection	1 work-hour X \$85 per hour = \$85	None	\$85	\$257,890
Reporting	1 work-hour X \$85 per hour = \$85	\$0	\$85	\$257,890

The FAA estimates the following costs to do any necessary follow-on actions that would be required based on the results of the inspection. The FAA has no way of determining the number of aircraft that might need these actions:

### On-condition costs

Action	Labor cost	Parts cost	Cost per product
Detailed inspection	1 work-hour X \$85 per hour = \$85	\$0	\$85
Replacement	1 work-hour X \$85 per hour = \$85	\$0*	\$85

\* The FAA has received no definitive data on the parts cost for the on-condition replacements.

The FAA has included all known costs in its cost estimate. According to the manufacturer, however, some or all of the costs of this AD may be covered under warranty, thereby reducing the cost impact on affected operators.

### Paperwork Reduction Act

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a currently valid OMB Control Number. The OMB Control Number for this information collection is 2120-0056. Public reporting for this collection of information is estimated to take approximately 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering

and maintaining the data needed, and completing and reviewing the collection of information. All responses to this collection of information are mandatory. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to: Information Collection Clearance Officer, Federal Aviation Administration, 10101 Hillwood Parkway, Fort Worth, TX 76177-1524.

### **Authority for this Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### **Regulatory Findings**

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Will not affect intrastate aviation in Alaska, and



(3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

#### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

#### **The Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

#### **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

2. The FAA amends § 39.13 by:

a. Removing Airworthiness Directive (AD) 2022-04-09, Amendment 39-21951 (87 FR 10958, February 28, 2022); and

b. Adding the following new AD:

**2023-13-11 AVOX Systems Inc. (formerly Scott Aviation):** Amendment 39-22496;

Docket No. FAA-2023-0015; Project Identifier AD-2022-01281-T.

#### **(a) Effective Date**

This airworthiness directive (AD) is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

#### **(b) Affected ADs**

This AD replaces AD 2022-04-09, Amendment 39-21951 (87 FR 10958, February 28, 2022) (AD 2022-04-09).

#### **(c) Applicability**

This AD applies to AVOX Systems Inc. (formerly Scott Aviation) oxygen cylinder and valve assemblies having part number (P/N) 89794077, 89794015, 891511-14, 806835-01, 807982-01, 808433-01, or 891311-14; and oxygen valve

assemblies (body and gage assemblies) having P/N 807206-01. These assemblies might be installed on, but not limited to, the aircraft identified in paragraphs (c)(1) through (12) of this AD, certificated in any category.

(1) Airbus SAS Model A300 B2-1A, B2-1C, B2K-3C, B2-203, B4-2C, B4-103, and B4-203 airplanes.

(2) Airbus SAS Model A300 B4-601, B4-603, B4-620, B4-622, B4-605R, B4-622R, F4-605R, F4-622R, and C4-605R Variant F airplanes.

(3) Airbus SAS Model A310-203, -204, -221, -222, -304, -322, -324, and -325 airplanes.

(4) Airbus SAS Model A318-111, -112, -121, and -122 airplanes.

(5) Airbus SAS Model A319-111, -112, -113, -114, -115, -131, -132, -133, and -151N airplanes.

(6) Airbus SAS Model A320-211, -212, -214, -216, -231, -232, -233, -251N, -252N, -253N, -271N, -272N, and -273N airplanes.

(7) Airbus SAS Model A321-111, -112, -131, -211, -212, -213, -231, -232, -251N, -252N, -253N, -271N, -272N, -251NX, -252NX, -253NX, -271NX, and -272NX airplanes.

(8) Airbus SAS Model A330-201, -202, -203, -223, -243, -301, -302, -303, -321, -322, -323, -341, -342, -343, and -941 airplanes.

(9) Airbus Model A340-211, -212, -213, -311, -312, -313, -541, and -642 airplanes.

(10) ATR—GIE Avions de Transport Régional Model ATR42-200, -300, -320, and -500 airplanes.

(11) ATR—GIE Avions de Transport Régional Model ATR72-101, -102, -201, -202, -211, -212, and -212A airplanes.

(12) The Boeing Company Model 747-8 series airplanes.

**(d) Subject**

Air Transport Association (ATA) of America Code 35, Oxygen.

**(e) Unsafe Condition**

This AD was prompted by reports of cylinder and valve assemblies having oxygen leakage from the valve assembly vent hole, caused by the absence of a guide that maintains appropriate spacing between certain parts. The FAA is issuing this AD to address oxygen leakage from cylinder and valve assemblies. The unsafe condition, if not addressed, could result in decreased or insufficient oxygen supply during a depressurization event; and heating or flow friction, which could cause an ignition event in the valve assembly.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Definition of Detailed Inspection**

For the purposes of this AD, a detailed inspection is an intensive examination of a specific item, installation, or assembly to detect damage, failure, or irregularity. Available lighting is normally supplemented with a direct source of good lighting at an intensity deemed appropriate. Inspection aids such as mirror, magnifying lenses, etc., may be necessary. Surface cleaning and elaborate procedures may be required.

**(h) Identification of Affected Cylinder and Valve Assemblies**

Within 60 days after the effective date of this AD, inspect the oxygen valve assemblies, and oxygen cylinder and valve assemblies, to determine if the serial numbers of the valve, cylinder, and entire assembly, are listed in Appendix 1 or Appendix 2, “Affected Shipments,” of the applicable service information identified in paragraphs (h)(1) through (3) of this AD. A review of airplane maintenance records is acceptable in lieu of this inspection if the serial numbers can be conclusively determined from that review.

(1) AVOX Systems Inc. Alert Service Bulletin 10015804-35-01, Revision 03, dated June 7, 2021.

(2) AVOX Systems Inc. Alert Service Bulletin 10015804-35-02, Revision 03, dated March 11, 2022.

(3) AVOX Systems Inc. Alert Service Bulletin 10015804-35-03, Revision 03, dated June 18, 2021.

**(i) Inspection of the Gap, Parts Marking Actions, and Replacement, With No Changes**

If, during any inspection or records review required by paragraph (h) of this AD, any oxygen valve assembly, valve or cylinder of an oxygen cylinder and valve assembly, or oxygen cylinder and valve assembly having an affected serial number is found: Before further flight, do a detailed inspection for correct spacing of the gap between the bottom of the packing retainer and top of the valve body, in accordance with paragraph 3.C. of the Accomplishment Instructions of the applicable service information identified in paragraphs (h)(1) through (3) of this AD.

(1) If the gap is found to be acceptable, as defined in the applicable service information identified in paragraphs (h)(1) through (3) of this AD, before further flight, do the parts marking actions in accordance with paragraph 3.D.(1) of the Accomplishment Instructions of the applicable service information identified in paragraphs (h)(1) through (3) of this AD.

(2) If the gap is found to be unacceptable, as defined in the applicable service information identified in paragraphs (h)(1) through (3) of this AD, before further flight, remove the affected assembly, in accordance with paragraphs 3.D.(2) or 3.D.(3), as applicable, of the Accomplishment Instructions of the applicable service information identified in paragraphs (h)(1) through (3) of this AD; and replace with a serviceable assembly.

## **(j) Reporting and Return of Parts**

(1) Report the results of the inspection required by paragraph (i) of this AD within the applicable time specified in paragraph (j)(1)(i) or (ii) of this AD. Report the results in accordance with paragraph 3.D.(1)(a) of the Accomplishment Instructions of the applicable service information identified in paragraphs (h)(1) through (3) of this AD.

(i) If the inspection was done on or after the effective date of this AD: Submit the report within 30 days after the inspection.

(ii) If the inspection was done before the effective date of this AD: Submit the report within 30 days after the effective date of this AD.

(2) If, during the inspection required by paragraph (i) of this AD, any gap is found to be unacceptable, within the applicable time specified in paragraph (j)(2)(i) or (ii) of this AD, return the assembly to the manufacturer in accordance with paragraph 3.D.(2) or 3.D.(3), as applicable, of the Accomplishment Instructions of the applicable service information identified in paragraphs (h)(1) through (3) of this AD, except you are not required to contact AVOX Systems Inc. for shipping instructions.

(i) If the inspection was done on or after the effective date of this AD: Return the assembly within 30 days after the inspection.

(ii) If the inspection was done before the effective date of this AD: Return the assembly within 30 days after the effective date of this AD.

## **(k) Parts Installation Limitation**

As of the effective date of this AD, no AVOX Systems Inc. oxygen valve assembly, or valve or cylinder that is part of an oxygen cylinder and valve assembly, or oxygen cylinder and valve assembly having an affected serial number identified in Appendix 1, "Affected Shipments," or Appendix 2, "Affected Shipments," of any AVOX Systems Inc. service information identified in paragraphs (h)(1) through (3) of this AD

may be installed on any airplane unless the requirements of paragraph (i) of this AD have been accomplished on that affected assembly.

**(l) Credit for Previous Actions**

(1) This paragraph provides credit for the actions specified in paragraphs (h) or (i) of this AD, if those actions were performed before the effective date of this AD using the service information specified in paragraphs (l)(1)(i) through (iii) of this AD. This service information is not incorporated by reference in this AD.

(i) AVOX Systems Inc. Service Bulletin 10015804-35-01, dated March 6, 2019; and AVOX Systems Inc. Alert Service Bulletin 10015804-35-01, Revision 01, dated July 9, 2019.

(ii) AVOX Systems Inc. Alert Service Bulletin 10015804-35-02, Revision 1, dated September 4, 2019.

(iii) AVOX Systems Inc. Service Bulletin 10015804-35-03, dated April 11, 2019; and AVOX Systems Inc. Alert Service Bulletin 10015804-35-03, Revision 01, dated May 21, 2019.

(2) This paragraph provides credit for the actions specified in paragraphs (h) or (i) of this AD, if those actions were performed before the effective date of this AD using the service information specified in paragraphs (l)(2)(i) through (iii) of this AD, which was incorporated by reference in AD 2022-04-09.

(i) AVOX Systems Inc. Alert Service Bulletin 10015804-35-01, Revision 02, dated October 16, 2019.

(ii) AVOX Systems Inc. Alert Service Bulletin 10015804-35-02, Revision 2, dated October 31, 2019.

(iii) AVOX Systems Inc. Alert Service Bulletin 10015804-35-03, Revision 02, dated October 15, 2019.

**(m) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, East Certification Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or responsible Flight Standards Office, as appropriate. If sending information directly to the manager of the East Certification Branch, send it to ATTN: Program Manager, Continuing Operational Safety, at the address identified in paragraph (n) of this AD or email to: 9-avs-nyaco-cos@faa.gov. If mailing information, also submit information by email.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the responsible Flight Standards Office.

**(n) Related Information**

For more information about this AD, contact Elizabeth Dowling, Aviation Safety Engineer, FAA, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7300; email 9-avs-nyaco-cos@faa.gov.

**(o) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) AVOX Systems Inc. Alert Service Bulletin 10015804-35-01, Revision 03, dated June 7, 2021.

(ii) AVOX Systems Inc. Alert Service Bulletin 10015804-35-02, Revision 03, dated March 11, 2022.

(iii) AVOX Systems Inc. Alert Service Bulletin 10015804-35-03, Revision 03, dated June 18, 2021.

(3) For service information identified in this AD, contact AVOX Systems Inc., 225 Erie Street, Lancaster, NY 14086; telephone 716-683-5100; website [safranaerosystems.com](http://safranaerosystems.com).

(4) You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email [fr.inspection@nara.gov](mailto:fr.inspection@nara.gov), or go to: [www.archives.gov/federal-register/cfr/ibr-locations.html](http://www.archives.gov/federal-register/cfr/ibr-locations.html).

Issued on July 7, 2023.

Michael Linegang, Acting Director,  
Compliance & Airworthiness Division,  
Aircraft Certification Service.

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